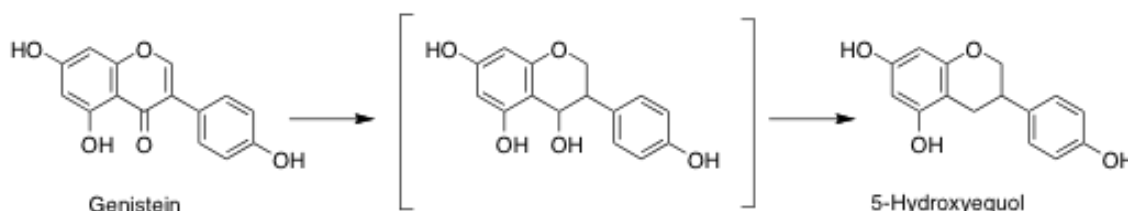


Genistein



Transformation of genistein by human intestinal bacteria

代謝実験

腸内細菌代謝 ヒト腸内細菌フローラ、ヒト腸内細菌分離株 DZE

Anaerobic incubation with human intestinal bacterium, monitoring a metabolite by HPLC

A bacterium was inoculated into 2 ml of GAM broth. When turbidities (540 nm) of the bacterial suspension reached to 0.30 ± 0.02 O.D., a 100- μ l portion of the precultured bacteria was inoculated into 2 ml of GAM broth with genistein. After incubation, a 100- μ l aliquot was removed and extracted three times with 200 μ l of BuOH. After evaporation of the BuOH *in vacuo*, the residue was dissolved in 0.3 ml of MeOH. The MeOH solution was filtered through a 0.2- μ m membrane filter, and a 10- μ l portion was injected onto a column for HPLC analysis under the conditions described above. [Jin *et al.*, *Biol. Pharm. Bull.*, **31**, 1621-1625 (2008).]

Preparation of 5-hydroxyequol by a human intestinal bacterial strain DZE

A bacterial suspension (50 ml) of strain DZE was inoculated to 0.8 l GAM broth containing genistein (50 mg) and incubated at 37°C in an anaerobic incubator for 120 h. The reaction mixture was then extracted three times with ethyl acetate. The organic layer was evaporated under reduced pressure to give a residue. The residue was applied to a column of silica gel, which was eluted with a solvent system, CHCl₃-MeOH (20:1),

to give 5-hydroxyequol (24 mg, 50% in yield). [Jin *et al.*, *Biol. Pharm. Bull.*, **31**, 1621-1625 (2008).]

5-Hydroxyequol

Amorphous powder. EI-MS m/z : 258 $[M]^+$. $[\alpha]^{23}_D$ -9.0° ($c=0.256$, MeOH). This compound was identified by comparing the 1H -NMR spectrum with that published. [Jin *et al.*, *Biol. Pharm. Bull.*, **31**, 1621-1625 (2008).]

参考文献

1) Jin J. S., Nishihata T., Kakiuchi N. and Hattori M.: Biotransformation of C-glucosylisoflavone puerarin to estrogenic (3*S*)-equol in co-culture of two human intestinal bacteria. *Biol. Pharm. Bull.*, **31**, 1621-1625 (2008).